

The Electric Tesla Acid Test

To truly put the Tesla to the test, we had to live with one, make it part of the family, treat it like any enthusiast car, and plug it in at night. But what would we think of it in the morning?

The assignment was simple, or so it seemed. I'd spend a week driving the Tesla Roadster, using it as I would any other car, to see if it was compatible with the lifestyle of someone who has gasoline running through his veins and whose entire identity hangs on the cars he drives.

I will admit to having preconceived notions of how this would work out. I figured that, after the Tesla was flatbedded a few times due to running out of juice, electrical fires, or general mechanical malaise, I would decree the Roadster to be nothing but hype, a pretend green statement for passionless, soulless people who never exceed the speed limit.

But I was completely wrong.

DAY 1: THE BIG SURPRISE 0 MILES, 0 kW-h

I pick up the roadster at a Tesla dealership in Menlo Park, California, and, after a quick lesson on charging the batteries, I'm out the door. I turn the key, and a cheerful *gong* sounds from behind the dash. It's the same sound that I remember from the 1980s video game Pole Position. In my head, I hear the digitized female voice say "prepare to qualify!" If you insist, hon: I floor it out of the parking lot.

Five seconds later, I'm breaking every speed limit in the county,

BY JASON CAMMISA PHOTOGRAPHY BY BRIAN KONOSKE



Despite its green tilt, the Tesla takes a run with some gas guzzlers at the drag strip. The charging port is illuminated by multicolor LEDs that flash as electricity flows.



and I'm hit with the realization that the world's first electric sports car is fast in a whole new way: it explodes off the line, pulling like a small jet plane. And because there's only one gear in the transmission, all of the power is available instantly, with no downshifts necessary. In no other vehicle does a twitch of your right big toe carry such instantaneous potential to tear a hole in traffic: on the point-and-squirt scale, this is the world's fastest car. It's like driving a Lamborghini with a big V-12 revved over 6000 rpm at all times, waiting to pounce—without the noise, vibration, or misdemeanor arrest for disturbing the peace.

Cars that can hit 60 mph in four seconds are usually capable of deafening an AC/DC roadie, but only a faint whine can be heard from the Tesla. And that silence adds a measure of surprise to unsuspecting drivers, whom I dust, Speedy Gonzales-style, at every green light. Every other car on the road suddenly seems so old tech, even Toyota Priuses. If hybrids are a Band-Aid over a bullet wound, the Tesla is a stem-cell DNA cure that'll clone out your injury. In a matter of hours, I've gone from wondering how I'll last a week with the Tesla to wondering how I'll be able to live the rest of my life without one.

By the time I park the car for the night, I've driven exactly 100 miles. The battery has 36 percent of its power remaining, but I am out of energy and slightly nauseated from all the flat-to-the-floor fun runs I've given my friends. I plug the Roadster into a 220-volt outlet, from which it will suck 30 amps of juice until it's fully charged. I turn off the lights in the garage, thinking that I've driven the future, and the future is really freaking fast.

DAY 2: AMPERAGE GALORE 100 MILES, 35 kW-h

The future also tripped my circuit breaker. It's my fault for not turning off the air compressor that shares the circuit, but at least the car's



battery was 80 percent charged when it happened. The incident makes me think about how much juice is stored in the Tesla's 992-pound lithium-ion battery pack: 53 kW-h, enough to power my home for five days. Or a laptop for four months. Or a BlackBerry for 606 years.

The absurdity of that last figure locks up my brain like an overloaded PC during the drive to a dynamometer shop forty miles away. But a glance at the 2010 Chevrolet Camaro sitting there wakes me up: I'm here to put the big pony car and the little roadster on the rollers. Why a Camaro? Check out the sidebar and dyno chart on page 60.

DAY 3: RACING-RANGE ANXIETY 181 MILES, 60 kW-h

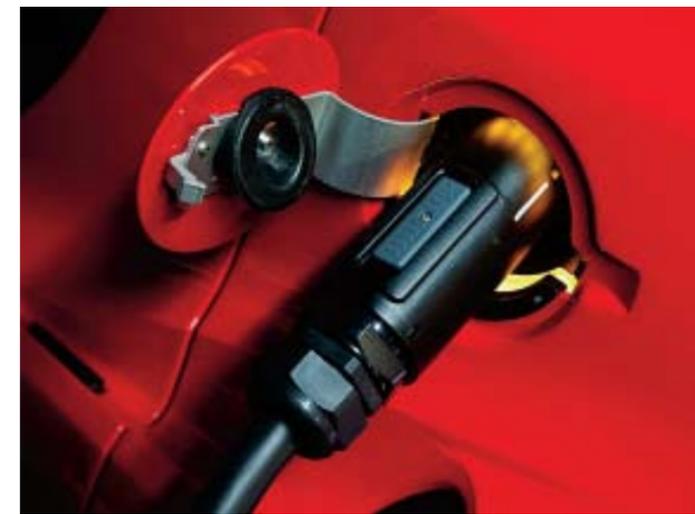
It's a new day, and I have a full battery. I drive thirty miles south to pick up photographer Brian Konoske, who clearly regrets selling his



Lotus Elise the second he lays eyes on the Tesla. I do a few donuts to cheer him up, and then we drive fifty-five miles north to Infineon Raceway, where we enter the Tesla in Wednesday Night Drags.

Surrounded by hissing, wheezing, flatulent, last-century technology, the roadster from the future stands out like a vegan food stand at a Texas barbecue. Our practice runs are cut short when a car dumps the oily contents of its engine on the drag strip. Of course, that could never happen with a Tesla. No rods will come flying through the sides of this car's block—it doesn't have one. After the delay, I manage a total of three runs down the strip—and even get to do a big, smoky, and eerily silent burnout. The Tesla's fastest time was 13.56 seconds at 93.92 mph, with a 30-mph headwind.

That wasn't nearly quick enough to beat the 1933 Ford in the



next lane, so I'm sent packing. The battery has about a quarter of its charge left, and I don't know if we'll make it home. But I have a confession to make: I cheated. I was so afraid that I'd kill the battery at the track that I had a friend standing by with a Toyota Tundra and a flatbed trailer.

Running out of juice would have been not only inconvenient but embarrassing, too, because I skipped out of the Tesla dealership before being told how to unlock a reserve ten percent battery capacity in case of emergency. But the fact remains that even though I'm driving the Roadster with utter disregard for conserving power, its battery has enough juice to travel 140 miles a day, or more than 50,000 miles per year. And not too many people are masochistic enough to drive that much, especially in a tiny sports car.

We make it back with only thirteen miles of range remaining and in reduced-power mode. Range anxiety is for the weak, I decide.

DAY 4: WILL THIS HOUSE FIT IN THE TRUNK? 289 MILES, 97 KW-H

I start the day by driving to a chic café in San Francisco. I cash in some parking karma and score a spot right in front—and get a window seat, to boot. I pretend to tap out some e-mails on my laptop, but I'm really watching to see how many people notice the Tesla. Lots do. They also seem to notice that bird after bird is spattering the carbon-fiber body and leather seats with runny, half-digested berries. Now I know why that particular spot was available in the first place. Karma is a bitch, and I'm quick to get out of there. Without breakfast.

On the way home, I stop at the grocery store with the intention of picking up something small to eat, but I make the cardinal mistake of entering the supermarket hungry and buy just about everything in sight. I walk out with \$175 worth of groceries spilling out of my shopping cart, and when I open the Tesla's trunk lid, a guy in a Toyota

THE PRICE OF POWER

The Tesla cost me \$45.98 to run for 499 miles, about the same as a car that uses premium unleaded at the rate of just over 33 mpg. The state of California provides electricity on a tiered price scale, meaning the more juice you use, the more you pay per kilowatt-hour. Continuing to charge the Tesla would have put me in the highest bracket, at more than \$0.44 per kW-h, or the equivalent of getting 19 mpg—probably less than you'd get in an Elise. Luckily, some electric companies will negotiate a steeply discounted rate if you charge at night. Tesla says you can charge the car for as little as \$0.05 per kW-h with the right plan, which would have reduced my electricity bill by \$36.73. —JC



Camry starts laughing at me. The Tesla's tiny trunk is full before I've even made a dent in the pile of shopping bags, so the rest of the chatel winds up on the passenger seat, and I drive home with Cottonelle on my lap.

I spend the rest of the day looking at houses with a real-estate agent, and although the Tesla is a lot less roomy than his Lexus, nothing says "cash deal" like pulling up in a \$122,000 electric sports car. I wind up buying a house, too, so this becomes the most expensive day of my life. I should have stopped after the grocery store.

DAY 5: CARVING CANYONS 389 MILES, 141 kW-h

Had I exhibited better control over my impulses in the Häagen-Dazs aisle, the Tesla might have even passed the grocery-store test, thus acing every exam I've given it. One last question remains: can it play sports car, too?

It certainly looks the part, and I decide to take the long way back to Tesla's shop in Menlo Park, replacing the boring interstate with almost 100 miles of mountainous, undulating roads. With the canvas top rolled up and stored in the trunk, I can actually hear the air rustling my hair—a sound that is typically obscured by a screaming engine. Normally, if a car's engine doesn't tickle my cochlea, the whole car fails to tickle my fancy—but the way the 248-hp motor reacts to my right foot is enough to compensate.

The Tesla's regenerative brakes kick in as you remove your foot from the accelerator. Since the regen slows the car at a rate of about 0.2 g, you don't use the friction brakes often in normal driving, but I finally gave the AP Racing brakes a workout tearing down the back roads. Stopping power is prodigious, although the ABS computer overreacts to small bumps in the road and cuts hydraulic pressure to the calipers. As a result, you learn very quickly to avoid reflectors and other bumps—which can occasionally cause the suspension to crash harshly into the bump stops—but the Tesla is otherwise flawless on felonious back-road blasts. The unassisted, supremely accurate steering tells you everything you want to hear from a set of front tires scrambling for traction, corner after bumpy corner. If you ever forget that the Tesla is based on a Lotus Elise, a few miles of twisty blacktop provide a quick reminder. When I pull into Tesla's parking lot, the wheels are black with brake dust, the battery is nearly empty, and I'm sunburned.

THE FINAL SHOCK 499 MILES, 185 kW-h

It isn't until I get home and start crunching numbers that I realize that the Tesla wins the Coolest Car I've Ever Driven award. Why? Despite the flat-out sprints, the drag racing, the donuts, the top-speed runs, and dicing through traffic like there's a jet pack was strapped to the trunk, Pacific Gas and Electric—which generated power for

the Tesla—released into the atmosphere the same amount of carbon dioxide as would a gasoline-powered car getting 99 mpg.

And the Roadster didn't break. It didn't smoke, lock up, freeze, or experience flux-capacitor failure. Over the past ten decades, no company has been able to reinvent the car—not General Motors with the EV1, not Toyota with the Prius. And now, a bunch of dudes from Silicon Valley have created an electric car that really works—as both an environmental fix and a speed fix.

Yes, it's small and impractical, but that's because it's a sports car. But as a real car, it actually works better than the Lotus Elise. If an alien landed on our planet tomorrow, examined how we drove on a daily basis, and had to pick between the Lotus and the Tesla, the extraterrestrial would pick the Tesla, even though, at a base price of \$103,450 (after a \$7500 government rebate), it costs some \$56,000 more. It's faster, quieter, and more luxurious.

Forget about driving cross-country: when was the last time you did that in a two-seat sports car? Forget about top speed: when was the last time you drove at triple-digit velocities? The Tesla fits the way—and the speeds at which—we actually drive. And this is coming from a man obsessed with the perfect double-clutch downshift, a man who loves the smell of partially burned fuel, a man who lives for the sound of a flat six at 8000 rpm.

Sure, I'd want to keep my gasoline-burning, piston-powered cars for fun. But if saving the environment means driving a Tesla every day, I'm fine with that. In fact, I'd love nothing more. ■

THE REAL DEAL



During my week with the Tesla, I caught up with Al Reed, a mechanic who commutes every day in an electric Volkswagen Scirocco. The Scirocco's sixteen 6-volt lead-acid batteries have propelled him more than 45,000 miles and are charged by a 5-kW solar panel on the roof of his house, so his car is truly a zero-emissions vehicle. The converted Scirocco can go 35 to 40 miles on a full charge, but the best part is that it makes road rage a thing of the past. With a small range, limited power, and without the benefit of regenerative braking, the Scirocco "teaches you to be a Zen driver and to make wise use of the juice." But Reed seems to have the speed bug, too: he commutes in the Scirocco to offset the smog he creates by driving his classic muscle cars on the weekends. — JC

A HORSE IS A HORSE

Of course, of course... not.

The Tesla and a V-6-powered Chevrolet Camaro with an automatic transmission deliver similar peak horsepower and torque to their rear wheels, but because the Tesla's motor drives the wheels without the benefit of a multispeed transmission, what you experience through the seat of your pants is very different.

The following graph shows the torque each car's rear wheels experience during

an all-out run from 0 to 120 mph. The dips in the Camaro's torque are the shifts between gears, which happen quite quickly and are among the smoothest you'll see. Note that the Tesla has no interruptions. Between 0 and 55 mph, the Tesla is the clear winner, even though by 40 mph, the Tesla's AC motor output begins diminishing.

One important thing to remember is that the Tesla's torque is available almost instantaneously—with only a nudge of

your right foot. The Camaro's numbers are available only when the transmission is in the lowest possible gear. Even fast modern transmissions take a considerable amount of time to downshift from cruising gear to passing gear—time that would be spent accelerating in the Tesla. — JC

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